TECHNICAL SPECIFICATIONS

WASHINGTON STATE FERRIES

M.V. PUYALLUP DRYDOCKING

CONTRACT NO. 00-7208

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TECHNICAL SPECIFICATIONS

For the following Technical Specifications, the Contractor is to provide all labor, material and equipment to accomplish each and every Bid Item unless otherwise specified.

The Specification Item sub-titles in brackets are for WSF internal use only, for Life Cycle Cost modeling. Bidders should ignore such bracketed sub-titles.

1. DRYDOCK VESSEL

{MAINTENANCE}

M.V. PUYALLUP Vessel Particulars ;
Length: 460'-2", **Beam**: 90'-0", **Draft**: 17'-3", **Gross Tons**: 3,926

A. Drydock Vessel for cleaning, painting, inspections, the work specified herein and any necessary repairs.

B. Block spacing shall be at twelve foot (12') centers. Within twenty-four (24) hours of Docking, provide three (3) copies of the block position drawing to the WSF Inspector indicating the block positions used**.**

C. Vessel shall be blocked to expose the previous docking block positions. **Attachment No. 2,** "Block Position Form" showing previous blocking position is provided.

NOTE:

Set Blocks at a height that will allow Propeller rotation. **Propeller blades extend below the base line.**

2. TEMPORARY SERVICE

{MAINTENANCE}

A. Install one (1) telephone on board in a location designated by the Vessel Staff Chief Engineer. The telephone is to have one (1) outside line with toll-free access to Seattle and vicinity and, if different, one (1) line for local numbers. The telephone shall have touch-tone service if available from the Contractor's telephone system.

B. Provide and/or maintain electricity, potable water, sewage removal, safe lighted gangway, and trash removal services while Vessel is in the Contractor's facility.

C. Provide safety and security for the entire Vessel throughout this contract period until such time as the WSF Representative has accepted redelivery of the Vessel. Every reasonable precaution shall be taken to protect the Vessel from the hazards of fire, flooding, pilferage, malicious damage, and other events including cataclysmic phenomena of nature.

D. Provide and maintain comprehensive and effective fire prevention and fire detection, and fire fighting programs and systems sufficient to ensure the safety and integrity of the Vessel. Provide personnel trained in shipboard fire fighting techniques and also trained to cooperate with and assist local fire fighting organizations. Provide sufficient shore fire hoses to ensure an adequate supply of fire fighting water, at sufficient pressure, and maintain an adequate number of tested fire-hoses aboard the Vessel to effectively fight fires at any location in the Vessel.

E. Provide and maintain portable fire extinguishers in sufficient quantity, and of the appropriate type, to combat local fires of any class. Provide sufficient fire watches, including roving watches as may be required, to ensure that fires that may be inadvertently started by welding sparks or heat, electrical malfunction, or spontaneous combustion are detected, reported and promptly extinguished.

3. SEA VALVES

{MAINTENANCE}

A. Open, or remove as required, the below listed sea valves; clean, blue and inspect for proper water tightness (valve disk to valve seat contact), including valve stems. All valves two inch (2”) and under shall be replaced with new Contractor furnished valves, the removed valves shall be left with the Vessel Staff Chief Engineer.

For the M.V. PUYALLUP:

Location	Qty	Service	Size	Type
No. 1 End	1	Main Sea Chest (Motor op)	16"	Gate
No. 1 End	1	Sea Chest Vent	2”	Gate
Fr 23	1	Sea Chest Vent	2"	Gate
Fr 32	1	Electric Machinery SW Cooling	6"	Check
Fr 32	1	Firemain Overboard.	4”	Stop Check
Fr 24	1	Sprinkler Strainer Flushing	2"	Gate
Fr 24	1	Main Engine SW Cooling	8”	Gate
Fr 30	1	EOS Cooling SW Overboard	1 ¼”	Gate
Fr 11	1	Bilge Sys Overboard	4”	Remote Stop/check
No. 2 End	1	Main Sea Chest (Motor op)	16”	Gate
No. 2 End	1	Sea Chest Vent	2”	Gate
Fr 23	1	Sea Chest Vent	2”	Gate
Fr 20	1	Firemain Overboard	4”	Stop/check
Fr 27	1	Main Engine SW Cooling	8”	Gate
Fr 42	1	Electric Machinery SW Cooling	6”	Gate

B. Sea valves shall be inspected by the WSF and USCG Inspectors, and Vessel Staff Chief Engineer for the following:

1. General material condition.
2. Valve disk to valve seat contact.
3. Proper mechanical operation.

C. Prior to installation, hydrostatically test all new and reconditioned valves to the satisfaction of the WSF Inspector, USCG Inspector and Vessel Staff Chief Engineer.

D. Provide three (3) written copies of the report of test, inspection, all repairs to existing valves and all new valves installed to the WSF Inspector.

E. Inspect for water leakage prior to launching. Any leakage will be repaired at the Contractor's expense.

4. SEA CHEST AND ANODE INSPECTION {MAINTENANCE}

A. Open the four (4) anode covers (2 per end) located on top of the sea chests for inspection by the WSF Inspector and Vessel Staff Chief Engineer.

B. Protect deck from damage during this Work Item.

C. Remove existing anodes from the cover plates and sea chest (12 anodes total, 6 per end (4 copper and 2 aluminum per end).

NOTE:

Disconnect electrical leads prior to removal of anodes. Reconnect electrical leads after installation of anodes. Test electrical leads to confirm connection to anodes.

D. Install new WSF supplied anodes. Close-up access plates using Contractor furnished new gaskets and grommets.

NOTE:

For purposes of bidding assume that **25 Square Feet** of each Sea Chest, including cover plates (internal & external), will require SSPC-SP 3, Power Tool Cleaning. The Contract will be adjusted upward or downward to account for the actual scope authorized by the WSF Inspector.

E. Apply two (2) coats of Sherwin Williams, Seaguard 6000 HS Epoxy, first coat will be Red Deck, second coat will be Gray to a minimum of 5 mils (DFT) each coat to all prepared surface areas repaired in this Item. Other areas of the Sea Chest will be accomplished in the Hull painting Items.

F. Inspect for water leakage prior to launching. Any leakage will be repaired at the Contractor's expense.

5. SEA STRAINER BOX INSPECTION AND PRESERVATION {MAINTENANCE}

NOTE:

The complete internal coating systems of the Salt Water Strainer Boxes are being changed to Sherwin Williams coating system.

A. Open the No. 1 and No. 2 End sea strainer boxes for inspection of strainer box, strainer plates, guide rails, screens and other internal fittings. Submit three (3) copies of a written report of the inspection results within twenty-four (24) hours of inspection completion to the WSF Project Engineer or Inspector.

B. Mechanically clean the interiors and covers of the strainer boxes to an SSPC-SP3, Power Tool Cleaning and apply two (2) coats of Sherwin Williams, Seaguard 6000 HS Epoxy, first coat will be Red Deck, second coat will be Gray to a minimum of 5 mils (DFT) each coat to all prepared surface areas repaired in this Item.

C. Apply two (2) coats of Sherwin Williams Ablative Anti-Fouling to prepared areas to a minimum of 10 mils (DFT). First coat will be Red, to a minimum of 5 mils (DFT), the second coat will be Black to a minimum of 5mils (DFT).

D. Allow adequate cure time for coating system prior to closing up Strainer Boxes.

E. Close up access plates using Contractor furnished new gaskets, grommets and fasteners.

F. Inspect for water leakage prior to launching. Any leakage will be repaired at the Contractor's expense.

6. RUDDER INSPECTION, NO. 1 AND NO. 2 ENDS
{MAINTENANCE}

A. Erect staging or provide suitable man lifting device on both sides of No. 1 and No. 2 End rudders for inspection. Remove staging upon completion of all affiliated work.

B. Drain and pressure-test rudders for leaks in the presence of the WSF Inspector, USCG Inspectors and the Vessel Staff Chief Engineer. Test pressure shall be 42" of water with Manometer, or 1.5 PSI on acceptable calibrated pressure gage that has 1.5 PSI at mid scale range within forty-eight (48) hours of dry docking the Vessel. Accepted test will be no leaks for One (1) Hour. Provide three (3) copies of a written report of findings to the WSF Inspector within twenty-four (24) hours upon completion of test/inspection.

C. Take and record clearances of rudder pintle and rudderstock bearings on No. 1 and No. 2 End rudders within 48 hours of dry docking the Vessel. Provide three (3) copies of a written report of findings to the WSF Inspector within twenty-four (24) hours upon completion of test/inspection.

7. PROPELLER INSPECTION, NO. 1 AND NO. 2 ENDS
{MAINTENANCE}

A. Erect and remove staging in area around No. 1 and No. 2 End Propellers as required to accomplish all affiliated work and inspection.

B. Polish the No. 1 and No. 2 End propellers by power disk sanding, using 80 or finer abrasive. Thoroughly clean propeller hub and blades for nondestructive testing.

C. Inspect No.1 and No.2 propellers for damage and proper blade track. Conduct a Nondestructive test for surface cracks on all areas of the propeller in the presence of the WSF and USCG Inspectors, and Vessel Staff Chief Engineer, perform test and submit three (3) copies of a written report of findings to the WSF Inspector with in two (2) days after Drydocking the Vessel

8. ROPE GUARD AND ZINC REPLACEMENTS, NO. 1 AND NO. 2 ENDS {MAINTENANCE}

A. Erect, modify, and remove staging in the area around No. 1 and No. 2 End Rope Guards as required to accomplish all affiliated work and inspections.

B. Remove the existing rope guards and zincs from the No. 1 and No. 2 Ends and replace them with new contractor furnished rope guards and zincs, (one (1) 6" x 12") zinc cut in half for each rope guard half) welded to the inside of the rope guards.

C. Install the new Rope Guards and Zincs.

D. Prepare and paint the rope guards using the Below the Water Line Painting system.

9. OUTER SHAFT SEAL INSPECTION, NO. 1 AND NO. 2 ENDS {MAINTENANCE}

A. Drain No. 1 and No. 2 End Outboard Stern Seal Unit. Properly dispose of oil.

B. Take outer seal wear-down readings on No. 1 and No. 2 Ends in presence of the WSF Inspector and Vessel Staff Chief Engineer. Submit (3) copies of a written report of findings to the WSF Inspector within twenty-four (24) hours of taking readings.

C. Fill No. 1 and No. 2 outboard Eagle seals with Chevron AW 68.

10. VOID SPACE INSPECTION {MAINTENANCE}

NOTE:

On M.V. PUYALLUP there are four (4) DB Void spaces. The Vessel Crew will open and close the covers.

A. Provide the services of a Marine Chemist to certify Voids "Safe for Workers," maintain the certificate until the inspection and any work is complete. Provide lighting and ventilation as necessary to facilitate the USCG inspection and any other work to be performed in the Void spaces. The Vessel's crew will open the six (6) manhole covers. Upon completion of work in the Voids, the Vessel's crew will close up the Voids using new Contractor furnished grommets.

11. CAPASTIC REPAIR
{MAINTENANCE}

NOTE:

For bidding purposes, assume that **25 Square Feet** of failed capastic will require repair. The Contract will be adjusted upward or downward to account for the actual application of Capastic authorized by the WSF Inspector.

A. Repair any areas of failed capastic around the CAPAC Anodes using 'Capastic' epoxy troweling compound made by ELECTROCATALYTIC, INC. The capastic shall be applied to a minimum thickness of 1/8 inch in the area of the shield out from the faired in area around the anode.

B. Build up a minimum of 22 mils (DFT) of epoxy Anti-Corrosion Coating over the repaired capastic areas and the secondary dielectric shield areas.

PAINTING OF VESSEL AND HULL PRESERVATION

(ATTACHMENT NO. 1)

Area Preparation, Surface Preparation, Blasting, Paint Coatings, and Inspection for Vessel's hull, curtain plates, casing and super structure shall be in accordance with Washington State Ferries' Marine Coating Specification 1/03 unless otherwise specified in the following Specifications.

12. FRESH WATER WASH OF VESSEL HULL AND GUARD
{MAINTENANCE}

A. Within twenty-four (24) hours of Drydocking Vessel, perform a Low-Pressure Water Cleaning (LP WC) at 3,000-3,500 PSI. in accordance with SSPC-SP 12/NACE 5. The wand shall be held no more than twelve inches (12") from the surface being washed. The entire Hull from the top of the Guard to the Keel, including, flat keel, all horizontal and vertical surfaces of the guard, rudders, sea chests, sea chest strainers, propellers shall be washed. The wash shall leave no visible growth or residue after the hull dries from washing.

B. On areas above water line on the hull, use Sherwin Williams 747 cleaner following manufactures recommendations.

C. Sea chest strainer plates shall be removed for cleaning, preparation and painting and reinstalled upon completion of all related work and inspections.

13. PREPARATION OF VESSEL HULL FOR BLASTING {MAINTENANCE}

NOTE:

Care shall be taken to avoid damage to the "CAPAC" Anodes and Reference Cell.

A. Install protective covering on Propellers, Shaft Seals, Propeller Bearings, exposed Shafting, upper and lower Rudder Bearing areas, Pintle Pin Bushing, CAPAC Anodes and Reference Cell, all through-hull penetrations and entrance ways to protect and prevent blast material from causing damage or entering Vessel.

B. Prior to any blasting the Contractor shall conduct an inspection with the WSF Inspector and the Vessel Staff Chief Engineer.

14. BLASTING OF THE GUARD AND ANTI-CORROSION COATING {MAINTENANCE}

NOTE:

For purposes of bidding assume that **600 Square Feet** of the **Guard** will require blasting to SSPC-SP6, Commercial Blast Cleaning. Upon completion of the blasting, the Contract will be adjusted upward or downward to account for the actual scope of blasting authorized by the WSF Inspector.

NOTE:

The Contractor shall have the option to UHP-WJ4, Ultrahigh-Pressure Water Jetting only if the hull profile is taken and is within the required profile in **Attachment No. 1** and approved by the WSF Inspector**.**

A. Blast areas of abrasion and corrosion on the horizontal and vertical surfaces (top, bottom, and side) of the guard, as authorized by the WSF Inspector, to an SSPC-SP6, Commercial Blast Cleaning.

B. The existing coating that is surrounding the blasted area, for at least two inches (2”), shall be feathered to a smooth surface. No visual edge between existing and new painting coats will be allowed.

C. Apply one (1) coat of Sherwin Williams Seaguard 6000 HS Epoxy to a minimum of 5mils (DFT), color will be Red Deck to all areas prepared in this Item.

15. PAINTING OF VESSEL GUARD, FULL COAT
{MAINTENANCE}

A. Apply one (1) coat of Sherwin Williams Seaguard 6000 HS Epoxy to a minimum of 5 mils (DFT), color Black to all surfaces of the Guard (top, bottom and side).

16. SPOT BLASTING AND ANTI-CORROSION COATING, OF THE HULL
{MAINTENANCE}

NOTE:

For purpose of bidding assume that **7,000 Square Feet** of the **HULL** will be blasted to an SSPC-SP 6, Commercial Blast Cleaning, from bottom of the guard to the keel, including flat keel, all horizontal and vertical surfaces of the guard, sea chests, strainer plates and rudder. Upon completion of the blasting, the Contract will be adjusted upward or downward to account for the actual scope of blasting authorized by the WSF Inspector.

NOTE:

The Contractor shall have the option to UHP-WJ4, Ultrahigh-Pressure Water Jetting only if the hull profile is taken and is within the required profile in **Attachment No. 1** and approved by the WSF Inspector.

A. Blast areas of abrasion, corrosion, and steel repairs from bottom of guard to the keel; including flat keel, all horizontal and vertical surfaces of the guard, sea chests, strainer plates and rudder, to an SSPC-SP 6, Commercial Blast Cleaning, as authorized by the WSF Inspector.

B. The existing coating that is surrounding the blasted area, for at least two inches (2") shall be feathered to a smooth surface. No visual edge between existing and new painting coats will be allowed.

C. Apply two (2) coats of Sherwin Williams Seaguard 6000 HS Epoxy to a minimum of 5 mils (DFT) each coat, first coat will be Red Deck, second coat will be Gray to all prepared surface areas in this Item.

17. PAINTING OF VESSEL HULL ABOVE WATERLINE TOP COATING
{MAINTENANCE}

NOTE :

For purpose of bidding assume that **2,000 Square Feet** of the **HULL** above the waterline will require a Top Coat. The Contract will be adjusted upward or downward to account for the actual area authorized by the WSF Inspector.

A. Apply one (1) coat of Sherwin Williams Seaguard 1224 Gloss Acrylic Epoxy WSF Green, to a minimum of 3 mils (DFT). Apply coating to all surfaces prepared on hull above Waterline.

18. PAINTING OF VESSEL HULL BELOW WATERLINE ANTI-FOULING (SPOT COAT)

{MAINTENANCE}

NOTE:

For purpose of bidding assume that **5,000 Square Feet** of the **HULL**, below the waterline will require an Anti-fouling coat. The Contract will be adjusted upward or downward to account for the actual area authorized by the WSF Inspector.

A. Apply one (1) coat of Sherwin Williams Ablative Anti-fouling, color will be Red, at a minimum of 5 mils (DFT), to all areas prepared below the waterline.

19. FULL COAT ANTI-FOULING

{MAINTENANCE}

A. Apply one (1) full coat of Sherwin Williams Ablative Anti-fouling, color will be Black, at a minimum of 5 mils (DFT), to all surfaces below the waterline.

20. DRAFT HULL AND RUDDER MARKINGS

{MAINTENANCE}

A. Paint all draft, hull and rudder marks using Sherwin Williams Seaguard HS 6000 Epoxy White, at a minimum of 3 mils (DFT).

21. HAND WASH PAINTED GREEN SURFACES ON CURTAIN PLATE

{MAINTENANCE}

A. Hand wash all WSF Green painted surfaces on the Port and Starboard Curtain Plate using Sherwin-Williams 747 cleaner in accordance with the manufacture instructions, including the Vessel's name on the four (4) corners of the Curtain plate, that are painted WHITE.

22. PREPARATION AND ANTI-CORROSIVE COATING OF AREAS PAINTED WSF GREEN ON CURTAIN PLATES

{MAINTENANCE}

NOTE:

For bidding purposes, assume that **500 Square Feet** of existing Painted Green surfaces on Port and Starboard exterior Curtain Plates will require SSPC-SP3, Power Tool Cleaning. The Contract will be adjusted upward or downward to account for the actual area authorized by the WSF Inspector.

A. Prepare painted GREEN surfaces on the exterior Curtain Plates as authorized by the WSF Inspector, to an SSPC-SP3, Power Tool Cleaning. This includes Vessel's name, which is painted white at the four (4) corners of the Curtain Plate.

B. Areas prepared by this Item shall be coated with two (2) coats of INTERNATIONAL Intertuf 262, to a minimum of 5 mils (DFT) each coat.

NOTE:

The back sides, corners and sharp edges of all angles, rat holes, weld seams, scallops, and beams shall be hand-striped with a brush for the Intertuf 262 coating.

23. PAINTING OF WSF GREEN ON CURTAIN PLATE

{MAINTENANCE}

A. Apply one (1) coat of INTERNATIONAL Intercare 755, WSF Green, to a minimum of 2 mils (DFT) to all areas painted Green on the Port and Starboard Exterior Curtain Plate.

B. Paint Vessel's name at the four (4) corners of the Curtain Plate using International Intercare 755, White, to a minimum of 2 mils (DFT).

24. PREPARATION AND PAINTING OF AREAS PAINTED WHITE ABOVE THE VEHICLE DECK

{STRUCTURE PRESERVATION}

NOTE:

For bidding purposes, assume that **3,000 Square Feet** will require SSPC-SP3, Power Tool Cleaning, high pressure water wash (2,500 psi), and painted with two (2) coats of A/C and one (1) top coat, staging will be required in various areas. Upon completion of the preparation and painting, the Contract will be adjusted upward or downward to account for the actual area authorized by the WSF Inspector.

A. Perform a Low-Pressure Water Cleaning (WJ-1) at 2,500 PSI. in accordance with SSPC-SP 12/NACE 5. The wand shall be held no more than twelve inches (12") from the surface being washed. The wash shall leave no visible residue after the surface dries from washing and all windows that are affected by this work are to be cleaned leaving no streaks, marks or damage of any kind.

B. Prepare various areas, as authorized by the WSF Inspector, to an SSPC-SP3, Power Tool Cleaning.

C. The existing coating that is surrounding the SSPC-SP3 area, for at least two inches, (2") shall be feathered to a smooth surface. No visual edge between existing and new painting coats will be allowed.

D. Hands wipe areas of sanding and areas to be painted, to remove all residue and contamination, to an SSPC-SP1, Solvent Cleaning.

E. Apply Two (2) spot coat of Intershield 300V 1st coat, **Bronze** Epoxy a/c, 2nd coat, **Aluminum** Epoxy a/c, at a minimum of 5.0 DFT each cost, for a total of 10 DFT.

F. Apply one (1) coat of INTERNATIONAL Interthane 990 gloss finish, WFS Ice Blue to a minimum of 2 mils (DFT).

25. MODIFY SUPERSTRUCTURE UNDER MAST ON NO. 1 AND NO. 2 ENDS

{MAINTENANCE}

A. Install structural modifications as describe on **Attachment No. 3**, WSF Dwg. 8113-656-003-1, Rev.-, "M.V. PUYALLUP, Structural Modifications In Way Of Main Mats", Dated 2/24/06.

B. Remove all required interferences and insulation; Reinstall all removed Items, interferences and insulation to their original location upon completion of installation of foundations; and, paint areas affected by this work as describe below. All Items removed shall be protected from any type of damage.

NOTE:

There are numerous interference Items that will require removal in order to perform this Work Item. It is recommended that the Contractor inspect the surrounding area affected by this work to view Items that may be required to be removed and replaced in order to perform this Work Item.

C. All welding will be inspected and tested by a NDT method approved by the WSF Inspector. Final testing shall be witnessed and approved by the WSF Inspector.

D. All new steel will be prepared to an SSPC-SP 10, Near White Blast Cleaning, and apply Interplate 997 (SW) Nippe-Cerramo pre-construction primer.

E. Prepare all other affected areas by this work to an SSPC-SP 3, Power Tool Cleaning.

F. Apply two (2) coats of INTERNATIONAL Intertuf 262, to a minimum of 5 mils (DFT) each coat for a total of 10 mils (DFT), to the prepared surfaces. The back sides, corners and sharp edges of all angles, rat holes, weld seams, scallops, and beams shall be hand-striped with a brush using Intertuf 262.

G. Topcoat all areas with INTERNATIONAL Intercare 755 series at a minimum of 2 mils (DFT) of proper color, to all prepared areas.

26. FABICATE AND INSTALL WRAPPER PLATES ON NO. 1 AND NO. 2 RUDDERS

{MAINTENANCE}

A. Blast both sides of wrapper plates; No. 1 and No. 2 Rudders where wrapper plates will be installed, using **Attachment No. 4** as a guide, plus six inches (6") beyond the wrapper plate weld line on the rudder to an SSPC-SP 5, White metal blast, with a profile of 4 to 6 mils. Apply Interplate 997 (SW) Nippe-Cerramo pre-construction primer to plate after blasting.

B. Apply two (2) coats of Sherwin Williams Seaguard 6000 HS Epoxy to a minimum of 5mils (DFT) each coat, first coat will be Red Deck, second coat will be Gray to the inner side of Wrapper Plate and on No. 1 and No. 2 Rudders in location of where Wrapper Plate will be covering.

C. Install and weld a one (1) piece 20.40 lb. (1/2") Mild Steel A-36 approximate size is fifty-six inches (56") Wide (28" on each side) x six feet (6') High, wrapper plate around the inboard edge of rudder as indicated on **Attachment No. 4**. Wrapper plate must match rudder design and shape, a one (1) piece Wrapper Plate is preferred, however, a multi-piece with a four inches (4") dia. heavy pipe (a pipe that would fit the edge of the rudder) may be an option if unable to shape a one (1) piece and is approved by the WSF Inspector.

D. Conduct an NDT for any defects in welds and welding area in presences of the WSF Inspector and the Vessel Staff Chief Engineer.

E. Apply Duraflake to a minimum of 30 mils to the surfaces of Wrapper Plate and six inches (6") from the wrapper plate on No. 1 and No. 2 Rudders. Supervision of the Duraflake installation shall be obtained from Corrosion Specialists Incorporated. The contact is Mr. Brad Bradshaw, (360) 568-2098.

F. Ensure a smooth and level transition between rudder and wrapper plate is obtain to eliminate turbulence and cavitation.

G. Apply Anti-fouling along with the underwater hull paint Item.

27. LINESHAFT BEARING STRUCTURAL SUPPORT MODIFICATIONS {MAINTENANCE}

A. Modify existing hull structure on **No. 1 and No. 2 Ends** located at approximately frame 66 through frame 70, in accordance with **Attachment No. 5,** WSF Dwg No. 8110-665-002-01, "Jumbo MK II Class, Phase 1 Modifications for Lineshaft Bearings Structural Support." Conduct modifications described by this drawing and as may otherwise be required to complete the generally defined scope of work. All work however shall be templated from actual structure onboard the Vessel.

B. The Contractor shall prepare a written work sequence plan in accordance with **General Note 11 of Attachment No. 5** for the scope of work described by this section. The plan (which includes welding procedures) must be submitted to the WSF Project Engineer for review and approval prior to the commencement of work.

C. Clean and gas free all spaces associated with the Work, as necessary, and obtain a Marine Chemist certificate for "SAFE FOR WORKERS", and "SAFE FOR HOT WORK". Maintain the certificate during the course of the Work. Provide fire watches as required. Clean up all debris upon completion of work.

D. All Welding shall be inspected and approved by the WSF Inspector.

E. Prepare all internal steel affected areas by this work to an SSPC-SP 3, Power Tool Cleaning. Prepare all external areas as stated in blasting of the hull Item and apply A/C coating.

F. **On Interior surfaces**: Apply two (2) coats of INTERNATIONAL Intertuf 262, to a minimum of 5 mils (DFT) each coat for a total of 10 mils (DFT), to the prepared surfaces, Interior and Exterior. The back sides, corners and sharp edges of all angles, rat holes, weld seams, scallops, and beams shall be hand-striped with a brush using Intertuf 262.

G. **On Exterior surfaces**: Apply underwater paint coating system as described in Painting of Vessel Hull Below Waterline, Anti-Fouling (spot Coat) and Vessel Hull, Below Waterline, Anti-fouling (Full Coat).

28. AUTOMATIC DRAFT INDICATING SYSTEM
(COMMUNICATION/NAVIGATION)

A. Install the Automatic Draft Indicating System as indicated on **Attachment No. 6,** WSF Dwg. 8113-607-095-01, Rev.-, "M.V. PUYALLUP, Automatic Draft Indication System, Electrical Installation", dtd 9/16/05; **Attachment No. 7,** WSF Dwg. 8213-607-002-01, Rev.-, "M.V. PUYALLUP, Automatic Draft indication System, Hull Installation"; and **Attachment No. 8** (WEIR-JONES) 8268-ADIS-PROPOSAL-Rev.-A0, titled "General Equipment And Technical Specifications Of The Automatic Draught Indicator System".

NOTE:

Clean and gas free and obtain a Marine Chemist certificate for "SAFE FOR WORKERS" and "SAFE FOR HOT WORK" for all areas that require Welding. Maintain the certification during the course of the work required in this Item.

B. Equipment vendor, vendor contact information, and spare parts are listed on **Attachment 8**. System installation will include four (4) each, ultrasonic transducers and mounting hardware, located IAW **Attachment No. 7**; two (2) each, wheelhouse display units, one (1), each system central processing unit, one (1), each system printer, (all located IAW **Attachment No. 6**) and all cabling, connection boxes and hardware.

C. The Contractor shall ensure the steel tubing (4.5" dia.) is of proper length and diameter to match the transducer and is approved by the Manufacture (Paul Chong, Weir-Jones Engineering 604-732-8821) and WSF Inspector prior to welding the tubing in the hull. Location of the edge of the tubing is five inches (5") in from the outside edge of the guard. Contractor is to provide tube length dimension to Weir-Jones as stated in this paragraph as soon as possible. Recommend Contractor to contact Weir-Jones upon award of contract.

D. Test all hull and deck penetrations for water tightness to the satisfaction of the WSF Inspection.

E. After equipment installation is complete, the Contractor will obtain the services of Weir-Jones Engineering Ltd, the equipment vendor, to accomplish system startup/commissioning, and any calibrations necessary.

F. Conduct an operational test to the satisfaction of the Weir-Jones Engineering LTD. Vendor Representative, the WSF and USCG Inspectors. Provide the WSF Inspector with three (3) written copies of the test results.

G. All new steel will be prepared to an SSPC-SP 10, Near White Blast Cleaning, and apply Interplate 997 (SW) Nippe-Cerramo pre-construction primer prior to installing.

H. Prepare all other painted surfaces affected by this work to a SSPC-3, Power Tool Cleaning.

I. Apply two (2) coats of INTERNATIONAL Intertuf 262, to a minimum of 5 mils (DFT) and topcoat with INTERNATIONAL, Intercare at a minimum of 2 mils (DFT) of proper color, to all prepared areas. All galvanized surfaces will be prepared with a coating of Formula 117, acid etch primer, prior to coating with International 262.

29. RADAR MODIFICATION
(COMMUNICATION/NAVIGATION)

A. Remove overhead panels and interferences in the Companion ways in crews quarters and Conference areas (below the Pilothouses) on both ends. Reinstall panels and interferences upon completion of all associated work. Store overhead panel in a safe location where they will not be damage in anyway, including water or moisture, and place covering over them to protect them from dust and dirt.

B. Schedule eight (8) lifts (one (1) lift equal max load on and off) for lifting and removal of equipment and other material.

C. Provided 40 labor hours for welders and fire watch, that includes all necessary equipment and supplies for any necessary welding required to install penetrations, transit and foundations in area of Pilothouses as may be required for the installation of new radars and platform adjustments.

30. PILOT HOUSE SECURITY UPGRADE (PILOTHOUSE HARDENING)
{SECURITY}

A. Install security modifications shown on **Attachment No. 9,** WSF Dwg. 8113-639-005-01, Rev.-, "M.V. PUYALLUP, Pilothouse Security Modifications", dated 10/07/05.

B. Remove one (1) ladder designated by the WSF Inspector from each end. Fill in the railing using schedule 40 galvanized 1¼ inch pipe.

C. Enclose the remaining ladder at each end with a wire mesh enclosure as shown on **Attachment No. 9**. The framing shall be 1¼ inch schedule 40 galvanized pipe.

D. Prior to welding to the upper passenger deck remove the insulation from the overhead of the lower passenger cabin. Restore the insulation when all work is completed.

NOTE:

Clean and gas free and obtain a Marine Chemist certificate for "SAFE FOR WORKERS" and "SAFE FOR HOT WORK" for all areas that require Welding. Maintain the certification during the course of the work required in this Item.

E. The locking system and Closure device will be provided by WSF.

F. The Contractor upon award of Contract shall provide a date for WSF to deliver the Locking and Closure device, the date shall be reasonable for the construction of security gate and lock framing and no earlier than one (1) week after award and a minimum of four (4) days before the Installing the locking system and Closure device for security gates.

G. Prepare all areas affected by this work to an SSPC-SP 3, Power Tool Cleaning. Apply a primer to all galvanized surfaces prior to the coating system. Apply two (2) coats of INTERNATIONAL Intertuf 262 series Epoxy, to a minimum of 5 mils (DFT) each coat for a total of 10 mils (DFT). Topcoat with INTERNATIONAL Intercare 755 series at a minimum of 2 mils (DFT) of proper color, to all prepared areas.

(END)